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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/618,138	07/11/2003	Reinhard Engelhardt	051812-1200	4438
24504	7590	01/12/2006	EXAMINER	
THOMAS, KAYDEN, HORSTEMEYER & RISLEY, LLP			KAPLAN, HAL IRA	
100 GALLERIA PARKWAY, NW			ART UNIT	
STE 1750			PAPER NUMBER	
ATLANTA, GA 30339-5948			2836	

DATE MAILED: 01/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/618,138

Applicant(s)

ENGELHARDT ET AL.

Examiner

Hal I. Kaplan

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**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --****Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 July 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 14 is/are allowed.
- 6) ☒ Claim(s) 1,2,8-10 and 12 is/are rejected.
- 7) ☒ Claim(s) 3-7,11 and 13 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 11/12/03.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Priority*

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### *Specification*

2. The disclosure is objected to because of the following informalities: The abstract of the disclosure contains the text "(Figure 1)" under the abstract. Page 1, line 9 contains the phrase "results into". It appears this should read "results in". Page 1, line 10 contains the phrase "source and the value". It appears this should read "source, the value". Page 2, line 30 contains the word "extend". It appears this should be "extent". Page 3, line 9 contains the phrase "results into". It appears this should read "results in". Page 5, line 18 contains the phrase "constant  $C_L$ ". It appears this should read "constant  $C_R$ ". Page 5, line 27 contains the phrase "value of is". It appears this should read "value of". Page 6, line 1 contains the phrase "As, in the new". It appears this should read "As in the new". Page 6, line 2 contains the word "dropping". It appears this should be "drop". Page 6, line 5 contains the phrase "and that then". It appears this should read "and then". Page 6, line 12 contains the phrase "If the supply line". It appears this should read "The supply line". Page 8, line 4 contains the word "air-condition". It appears this should be "air-conditioner". Page 9, line 26 contains the phrase "CL as". It appears this should read " $C_L$  as". Page 9, line 32 contains the word "chance". It appears this should be "change".

Appropriate correction is required.

***Claim Objections***

3. Claims 1, 2, 3, 10, and 13 are objected to because of the following informalities:  
Claim 1, line 6 contains the phrase "voltage source;". It appears this should read "voltage source; and". Claim 2, lines 4 and 6-7 contain the phrase "supply linearly dependent". It appears this should read "linearly dependent". Claim 3, line 4 contains the word "dropping". It appears this should be "drop". Claim 3, line 6 contains the phrase "supply linear variation". It appears this should read "linear variation". Claim 10, line 3 contains the phrase "and that then". It appears this should read "and then". Claim 13, line 7 contains the phrase "a AC voltage". It appears this should read "an AC voltage". Appropriate correction is required.
4. The claims are objected to because they include reference characters which are not enclosed within parentheses.

Reference characters corresponding to elements recited in the detailed description of the drawings and used in conjunction with the recitation of the same element or group of elements in the claims should be enclosed within parentheses so as to avoid confusion with other numbers or characters which may appear in the claims. See MPEP § 608.01(m).

***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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6. Claims 8-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. The term "about" in claims 8-10 is a relative term which renders the claim indefinite. The term "about" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. See MPEP §2173.05(b).

***Claim Rejections - 35 USC § 102***

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by the US patent of McLachlan (2,218,762).

As to claim 1, McLachlan, drawn to a line drop compensator, teaches a method of providing a desired constant AC voltage to a variable load which is arranged remote of a voltage source, comprising the steps of: compensating for a voltage drop over an electrical supply line which connects the load to the voltage source by a compensation AC voltage; the compensation AC voltage being added to the desired constant AC voltage to determine an output AC voltage of the voltage source; and varying the compensation AC voltage depending both on an absolute value of an alternating current

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conducted to the load and on a phase angle  $\phi$  between the output AC voltage of the voltage source and the alternating current (see column 1, lines 16-34).

As to claim 2, in the method of McLachlan, the step of varying the compensation AC voltage depending both on the absolute value of the alternating current conducted to the load and on the phase angle  $\phi$  comprises the step of calculating the compensation AC voltage from two summands which are supply linearly dependent on the total value of the alternating current, and one of which is additionally supply linearly dependent on  $\cos(\phi)$  and the other of which is additionally supply linearly dependent on  $\sin(\phi)$  (see column 1, lines 16-34; column 2, lines 9-12; and column 5, lines 3-18).

### ***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

12. Claims 1 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over the US patent of Borup (6,628,014).

As to claim 1, Borup, drawn to cable voltage drop compensation in an electric power supply system, teaches, in Figure 1, a method of providing a desired constant AC voltage to a variable load which is arranged remote of a voltage source, comprising the steps of: compensating for a voltage drop over an electrical supply line which connects the load to the voltage source by a compensation AC voltage (see column 2, line 62 through column 3, line 1); the compensation AC voltage being added to the desired constant AC voltage to determine an output AC voltage of the voltage source (see column 3, lines 19-21); and varying the compensation AC voltage depending both on an absolute value of an alternating current conducted to the load and on a phase angle  $\phi$  between the output AC voltage of the voltage source and the alternating current (see column 5, lines 22-28).

As to claim 12, Borup teaches the step of separately varying the compensation AC voltage for each phase of the output AC voltage of the voltage source (see column 3, lines 12-21 and column 5, lines 22-28). Borup does not teach or disclose the voltage source being selected from a static frequency converter and an electronically controlled transformer, but it would have been obvious to one of ordinary skill in the art, at the time of the invention, to use a transformer as the voltage source because transformers are frequently used as voltage or power sources.



***Allowable Subject Matter***

13. Claims 3-7 and 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

14. Claims 8-10 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

15. The following is a statement of reasons for the indication of allowable subject matter:

Claims 3-10 contain allowable subject matter because none of the prior art of record teaches or discloses determining a first constant for the supply linear variation of the compensation AC voltage with the total value of the alternating current and  $\cos(\phi)$ , in combination with the remaining claimed features.

Claim 11 contains allowable subject matter because none of the prior art of record teaches or discloses the voltage source being a rotating frequency converter, or the step of varying an exciting power of a generator to achieve a variation of the compensation AC voltage, in combination with the remaining claimed features.

16. Claims 13 and 14 are allowed.

17. The following is an examiner's statement of reasons for allowance:

Claims 13 and 14 contain allowable subject matter because none of the prior art of record teaches or discloses determining a first constant  $C_R$  as  $(|U_{full}| - |U_{load}|)/|I|$ , determining a second constant  $C_L$  as  $[|U_{full}| - |U_{load}| - C_R * |I| * \cos(\phi)]/[|I| * \sin(\phi)]$ ,



and repeatedly calculating a compensation AC voltage as  $|I| \cdot C_R \cdot \cos(\phi) + |I| \cdot C_L \cdot \sin(\phi)$ , in combination with the remaining claimed features.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."


### ***Conclusion***

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The US patent to Kuyper (2,147,490) discloses a similar method.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hal I. Kaplan whose telephone number is 571-272-8587. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on 571-272-2800 x36. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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